UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,057	09/26/2003	Zbigniew M. Dziong	Dziong 9-1	1232

46850 7590 07/14/2008

MENDELSOHN & ASSOCIATES, P.C.
1500 JOHN F. KENNEDY BLVD., SUITE 405
PHILADELPHIA, PA 19102

EXAMINER	
CHAN, SAI MING	
ART UNIT	**PAPER NUMBER**
2616	
MAIL DATE	**DELIVERY MODE**
07/14/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/673,057	DZIONG ET AL.	
	Examiner	Art Unit	
	Sai-Ming Chan	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-5, 7 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by **Zang et al. (U.S. Patent #7209975)**.

Consider **claim 1,** Zang et al. clearly disclose and show a method for determining a new restoration path (col. 15, lines 5 (newly computed backup)) corresponding to a new primary path (col. 6, lines 26-31 (connection request)) for a new service in a mesh network (column 6, lines 26-31 (connection request)) having a plurality of nodes (column 2, lines 37-51(network elements)) interconnected by a plurality of links (column 2, lines 37-51(working paths)), the network having one or more existing primary paths (column 2, lines 37-51(working path)) and one or more corresponding existing

restoration paths (column 2, lines 37-51(backup path)) for one or more corresponding existing services, the method comprising:

generating a path cost for each of a plurality of candidate restoration paths (column 6, lines 15-26 (value assigned to links)) associated with the new service; and

selecting the restoration path for the new service based on the path cost for each candidate restoration path (column 6, lines 15-26 (minimizes the value)), wherein generating the path cost for a candidate restoration path comprises:

determining, for each link Li of one or more links in the candidate restoration path, a set B-Li-set of links in the one or more existing primary paths (column 7, lines 35-42 (working path)) that are already protected by link Li (column 7, lines 35-42 (backup sub-path));

determining, for each link Li, a set I-Li-set of links (fig. 3 (360,361 and 362), column 5, lines 12-25), in the set B-Li-set that are also in the primary path;

calculating, for each link Li, a link cost Cost_Li based on the set B-Li-set and the set I-Li-set (column 8, lines 39-67); and

calculating the path cost based on a sum of the one or more link costs Cost_Li (column 8, lines 39-67).

Consider **claim 2,** and **as applied to claim 1 above,** Zang et al. clearly disclose and show an invention, wherein the set I-Li-set is determined from an intersection of the set B-Li-set and a set P-set of links in the primary path (fig. 3 (360,361 and 362), column 5, lines 12-25).

Consider **claim 3,** and **as applied to claim 1 above,** Zang et al. clearly discloses and shows an invention, wherein, for link Li, the link cost Cost_Li is a function of whether or not the set B-Li-set is empty (paragraphs 44-45 (column 8, lines 40-67 (S.sup.k,w.sub.ij could be 1 or 0))).

Consider **claim 4,** and **as applied to claim 3 above,** Zang et al. clearly discloses and shows an invention, wherein:

if the set B-Li-set is empty (column 9, lines 1-19), then the link cost Cost_Li is based on bandwidth of the new service (column 9, lines 1-19); and

if the set B-Li-set is not empty, then the link cost Cost_Li is a function of whether or not the set I-Li-set is empty (column 8, lines 39-67).

Consider **claim 5,** and **as applied to claim 4 above,** Zang et al. clearly disclose and show an invention, wherein:

if the set I-Li-set is empty (column 8, lines lines 40-67 (S.sup.k,w.sub.ij is 0))), then the link cost Cost_Li is based on a difference between the bandwidth of the new service and bandwidth currently reserved on the link Li (column 8, lines 39-67); and

if the set I-Li-set is not empty (column 8, lines lines 40-67 (S.sup.k,w.sub.ij is 1))), then the link cost Cost_Li is based on a difference between (a) a sum of the bandwidth of the new service and maximum service bandwidth protected by link Li for all links in the set I-Li-set and (b) the bandwidth currently reserved on the link Li (column 8, lines 39-67).

Consider **claim 7,** and **as applied to claim 1 above,** Zang et al. clearly disclose and show an invention, wherein the method is implemented for each of a plurality of candidate primary paths to generate a path cost associated with the candidate primary path (column 6, lines 15-26 (value assigned to links)) and further comprising selecting one of the candidate primary paths for the new service based on minimum path cost (column 6, lines 15-26 (minimizes the value)).

Consider **claim 19** and **as applied to claim 1 above,** Zang et al. clearly disclose and show the invention, wherein:

the new primary path (fig. 1 (110/114/124/144/174), col. 4, lines 5-19) and the new restoration path (fig. 1 (118/134/148/184), col. 4, lines 5-19) share a common source node (fig. 1 (110), col. 4, lines 5-19) and a common destination node (fig. (180), col. 4, lines 5-19); and

other than the source and destination nodes, the new primary path and the new restoration path are node disjoint (col. 6, lines 56-59 (link-disjoint)).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 8-15 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Zang et al. (U.S. Patent #7209975),** in view of **Battou (U.S. Patent Publication # 20020174207).**

Consider **claim 8,** and **as applied to claim 1 above,** Zang et al. clearly disclose and show a restoration path system, wherein the network is an open shortest path first

(column 6, lines 1-8 (OSPF)) network and restoration bandwidth information associated with each link in the candidate restoration path is transmitted between nodes using a data structure defined by OSPF opaque link-state advertisement option (column 6, lines 1-8 (OSPF)).

However, Zang et al. do not specifically display OSPF-TE. Furthermore, Battou clearly disclose an OSPF with traffic engineering extensions (paragraph 253 (support traffic engineering)).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a restoration path system as taught by Zang, and demonstrate the usage of OSPF-TE, as taught by Battou, in order to maintain the network survivability.

Consider **claim 9**, Zang et al. clearly disclose and a mesh network having a plurality of nodes (column 2, lines 37-51(network elements)) interconnected by a plurality of links (column 2, lines 37-51(working paths), and determine a new restoration path (col, 15, lines 5 (newly computed backup)) corresponding to a new primary path (column 6, lines 26-31 (connection request)) for a new service in a mesh network (column 6, lines 26-31 (connection request)), the network having one or more existing primary paths (column 2, lines 37-51(working path)) and one or more corresponding existing restoration paths (column 2, lines 37-51(backup path)) for one or more corresponding existing services, wherein:

generating a path cost for each of a plurality of candidate restoration paths (column 6, lines 15-26 (value assigned to links)) associated with the new service; and

selecting a new restoration path for the new service based on the path cost for each candidate restoration path (column 6, lines 15-26 (minimizes the value)), wherein generating the path cost for a candidate restoration path comprises:

determining, for each link Li of one or more links in the candidate restoration path, a set B-Li-set of links in the one or more existing primary paths that are already protected (column 7, lines 35-42 (working path)) by link Li (column 7, lines 35-42 (backup sub-path));

determining, for each link Li, a set I-Li-set of links (fig. 3 (360,361 and 362), column 5, lines 12-25), in the set B-Li-set that are also in the primary path;

calculating, for each link Li, a link cost Cost_Li based on the set B-Li-set and the set I-Li-set (column 8, lines 39-67); and

calculating the path cost based on a sum of the one or more link costs Cost_Li (column 8, lines 39-67).

However, Zang et al. do not specifically display network manager for the network. In the same field of endeavor, Battou clearly disclose a network with managers running different portion of the network (abstract).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a restoration path system as taught by

Zang, and demonstrate the usage of OSPF-TE, as taught by Battou, in order to maintain the network survivability.

Consider **claims 10 and 11**, and **as applied to claim 9 above**, Zang et al., as modified by Battou, clearly disclose a mesh network restoration system as described. However, Zang, as modified by Battou, do not specifically disclose network manager in the network.

In addition, Battou clearly disclose the network manager is distributed over the network (abstract (plurarity of managers)) and the network manager is located at a single node of the network (paragraph 11).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to demonstrate a restoration path system as taught by Zang, and show the network manager is distributed over the network and the network manager is located at a single node of the network, as taught by Battou, in order to maintain the network survivability.

With respect to **claim 12-15** and **17**, they are rejected for the same reason as set forth in the node **claims 2-5 and 7**, respectively.

Consider **claim 18** and **as applied to claim 9 above,** Zang et al., as modified by Battou, clearly disclose and show the invention, wherein:

the new primary path (fig. 1 (110/114/124/144/174), col. 4, lines 5-19) and the new restoration path (fig. 1 (118/134/148/184), col. 4, lines 5-19) share a common source node (fig. 1 (110), col. 4, lines 5-19) and a common destination node (fig. (180), col. 4,

lines 5-19); and

other than the source and destination nodes, the new primary path and the new restoration path are node disjoint (col. 6, lines 56-59 (link-disjoint).

Claims 6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Zang et al. (U.S. Patent #7209975)**, in view of **Battou (U.S. Patent Publication # 20020174207),** and in view of **Chudak (U.S. Patent # 7308198)**.

Consider **claim 6**, and **as applied to claim 4 above**,

claim 16, and **as applied to claim 14 above,**

Zang, as modified by Battou, clearly disclose and show an invention as described.

However, Zang, as modified by Battou, do not specifically disclose high level cost of capacity.

Furthermore, Chudak clearly disclose the path cost is set to a relatively high level if there is not enough capacity on the link Li to protect the new service (column 17, lines 41-45 (costs twice as much).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate a restoration path system as taught by Zang, and demonstrate the high cost of capacity, as taught by Chudak, in order to maintain the network survivability.

Response to Amendment

Applicant's arguments filed on April 18, 2008, with respect to claims 1, 2-3, 5-6, 9, 12-15 and 17, have been carefully considered.

In the present application, Applicants basically argue, that Zang does not teach or suggest "new restoration path corresponding to new primary path", "nodes disjoint". The Examiner has modified the response to clarify the response to claims 6, 12-15, and 17, and provide "nodes disjoint" and "new restoration path corresponding to new primary path" in claims 1 and 9. See the above rejections of claims 1, 2-3, 5-6, 9, 12-15 and 17, for the relevant interpretation and citations disclosing the limitations.

Conclusion

Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to**:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the

Examiner should be directed to Sai-Ming Chan whose telephone number is (571) 270-1769. The Examiner can normally be reached on Monday-Thursday from 6:30am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Seema Rao can be reached on (571) 272-3174. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 571-272-4100.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

/Sai-Ming Chan/

Examiner, Art Unit 2616

June 24, 2008

/Seema S. Rao/

Supervisory Patent Examiner, Art Unit 2616